Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-39 previously cancelled.

40. (Previously Presented) A method of assembling an electronic access control device having a microprocessor-based control circuit including a microprocessor and a non-volatile memory for storing an access code for controlling operation of the electronic access control device, comprising :

connecting to a communication port in the microprocessor-based control circuit, the communication port being connected to the microprocessor-based control circuit for accessing the non-volatile memory;

sending a read signal through the communication port to the microprocessor-based control circuit to trigger the microprocessor-based control circuit to transmit the access code stored in the non-volatile memory; and,

receiving a transmission of the access code through the communication port by the microprocessor-based control circuit in response to the read signal.

41. (Currently Amended) A method of entering a user-programmed access code into a battery-powered electronic access control device having a keypad and a microprocessor-based control circuit including a microprocessor and a memory storing a permanent access code, comprising:

pressing any of at least two keys on the keypad to trigger a transition of the microprocessor from a sleep mode with reduced power consumption to an operation mode;

pressing a program key on the keypad ~~to trigger a transition of the microprocessor from a sleep mode with reduced power consumption into an operation mode and~~ to indicate to the microprocessor initiation of a code programming operation, the program key being wired to one of multiple interrupt pins of the microprocessor;

~~immediately following the pressing of the program key,~~ entering the permanent access code using alphanumerical keys on the keypad; and

after entering the permanent access code, entering the user-programmed access code using the alphanumerical keys of the keypad.

42. (Previously Presented) A method of assembling an electronic access control device for mounting on a storage device, the access control device having a microprocessor-based control circuit including a microprocessor and a non-volatile memory for storing a permanent access code for controlling operation of the access control device, the method comprising:

installing the non-volatile memory in the microprocessor-based control circuit for accessing the non-volatile memory;

sending a write signal through the communication port to the microprocessor-based control circuit to indicate and access code is to be written into the non-volatile memory; and

writing said permanent access code to the non-volatile memory through the communication port.

43. (Currently Amended) A battery-powered electronic access control device comprising:

a keypad having at least one row of keys mounted thereon, ~~including~~ comprising a program key, for pressing by a user to enter user input;

a microprocessor-based control circuit ~~including~~ comprising a microprocessor and a non-volatile memory storing a permanent access code, the microprocessor having multiple inputs for receiving an interrupt signal, and the program key of the keypad being connected to one of the multiple inputs, the microprocessor being programmed to enter a sleep mode to conserve battery power between operations and to awaken from the sleep mode upon the pressing of any of at least two keys on the keypad;

the microprocessor-based control circuit being connected to the keypad for receiving user inputs entered through pressing the keys of the keypad, the microprocessor being configured to switch from the sleep mode into an operation mode and to ~~immediately~~ enter a code programming operation in response to a pressing of the program key, receive a first key code through the keypad in response to detecting the pressing of the program key, compare the first key code with the permanent access code in the non-volatile memory, receive a second key code through the keypad, and store the second key code in the volatile memory as an access code for

the access control device if the first key code matches the permanent access code in the non-volatile memory.

44. (Previously presented) An electronic access control device as in claim 43, wherein the microprocessor is further configured to display an error message if it detects that the program key had been pressed out of sequence.

45. (Previously presented) An electronic access control device as in claim 43, wherein the keypad further includes a clear key, and the microprocessor is further configured to wait for a pre-selected period of time in response to detecting a pressing of the clear key.

46. (Previously presented) An electronic access control device as in claim 43, wherein the microprocessor is further configured to disable operation of the electronic access control device for a pre-selected period of time if the microprocessor has received a pre-selected number of invalid inputs consecutively entered through the keypad.

47. (Previously presented) An electronic access control device as in claim 43, wherein the microprocessor is further configured to generate an error message if it detects a lapse of a pre-selected time between two consecutive keypad key entries.

48. (Previously presented) A method as in claim 40, wherein the non-volatile memory contains a serial number for the electronic access control device stored therein, and further including the step of receiving a transmission of the serial number through the communication port.

49. (Previously presented) A method as in claim 42 further including the step of writing a serial number for the electronic access control device into the non-volatile memory through the communication port.

50. (Currently Amended) An electronic access control device comprising:

a microprocessor-based control circuit ~~including~~ comprising a microprocessor and a non-volatile memory; and

a communication port connected to the microprocessor-based control circuit;

the microprocessor being programmed to receive a write signal through the communication port when the non-volatile memory does not contain a permanent access code for the access control device, receive a permanent access code through the communication port in

response to the write signal, and write the receive permanent access code into the non-volatile memory.

51. (Previously Presented) An electronic access control device as in claim 50, wherein the microprocessor is further programmed to receive a serial number for said electronic access control device and write the serial number into the non-volatile memory.

52. (Currently Amended) An electronic access control device comprising:

a microprocessor-based control circuit ~~including~~ comprising a microprocessor and a non-volatile memory containing an access code for the electronic access control device; and

a communication port connected to the microprocessor-based control circuit,

the microprocessor being programmed to receive a read signal through the communication port, and in response to the read signal transmit the access code in the non-volatile memory out through the communication port.

53. (Previously Presented) An electronic access control device as in claim 52, wherein the non-volatile memory further contains a serial number for said electronic access control device, and wherein the microprocessor is further programmed to transmit the serial number through the communication port.

54. (Currently Amended) An electronic access control device comprising:

a microprocessor-based control circuit ~~including~~ comprising a microprocessor and a non-volatile memory containing a stored access code, the microprocessor having at least two interrupt inputs;

a battery for powering operation of the access control device;

a keypad having multiple keys connected to the interrupt inputs of the microprocessor, wherein pressing ~~key~~ any of at least two keys of the keypad sends an interrupt signal to the microprocessor through one of the interrupt inputs; and

a lock actuator operatively controlled by the microprocessor,

the microprocessor being programmed to receive an input access code through the keypad, compare the input access code with the stored access code in the non-volatile memory, and activate the lock actuator if the input access code matches the stored access code, the microprocessor being further programmed to enter a sleep mode between operations to conserve

battery power and to switch from the sleep mode to an operation mode upon receiving an interrupt signal through one of the interrupt inputs.

55. (Previously Presented) An electronic access control device as in claim 54 wherein the microprocessor-based control circuit includes a low-battery detection circuit that is enabled by the microprocessor in the operation mode for measuring a voltage of the battery and disabled when the microprocessor is in the sleep mode.

56. (Previously Presented) An electronic access control device as in claim 54 wherein the lock actuator includes a solenoid control circuit for energizing a solenoid, the solenoid control circuit being controlled by the microprocessor and being enabled when the microprocessor is in the operation mode, the solenoid control circuit having first and second energized states controlled by a timer to energize the solenoid in the first energized state for a pre-selected first time interval at a first power level to move a plunger of the solenoid into a retracted position, and subsequently to energize the solenoid in the second energized state at a second power level to maintain the plunger in the retracted position for a second pre-selected time interval, the second power level being non-zero and lower than the first power level.

57. (Currently Amended) An electronic access control device as in claim 54, wherein the keypad includes a program key connected to one of the interrupt inputs of the microprocessor, and wherein the microprocessor is programmed to ~~switch from the sleep mode to the operation mode and~~ enter a code programming sequence in response to a pressing of the program key, receive a first input code from the keypad, compare the first input code with the stored access code in the non-volatile memory, receive an additional access code from the keypad if the first input code matches the stored access code, and store the additional access code in the non-volatile memory.

58. (Previously Presented) An electronic access control device as in claim 54, further including a communication port connected to the microprocessor-based control circuit for sending an access code to the microprocessor-based control circuit for writing into the non-volatile memory to form the stored access code.

59. (Previously Presented) An electronic access control device as in claim 58, wherein the microprocessor is programmed to receive a serial number for said electronic access

control device through the communication port and write the serial number into the non-volatile memory.

60. (Previously presented) An electronic access control device as in claim 54, further including a communication port connected to the microprocessor-based control circuit, and wherein the microprocessor is programmed to receive a read signal through the communication port and in response to the read signal to transmit the stored access code through the communication port.

61. (Previously presented) An electronic access control device as in claim 59, wherein the non-volatile memory further contains a serial number for said electronic access control device, and wherein the microprocessor is further programmed to transmit the serial number though the communication port.

62. (Currently Amended) An electronic access control device comprising:

a lock;

a solenoid coupled to the lock for opening and closing the lock;

a battery having a voltage for providing power to energize the solenoid;

a microprocessor-based control circuit ~~including~~ comprising a driver circuit for energizing the solenoid and a time, the control circuit controlling the driver circuit to supply a first amount of power from the battery sufficient to energize the solenoid to move a plunger of the solenoid into an open position to allow opening of the lock and then to supply a non-zero second amount of power form the battery that is lower than the first amount to energize the solenoid to hold the plunger in the open position until a preset time of about 3 seconds has elapse as specified by the timer.

63. (Withdrawn)

64. (Previously Presented) A method as in claim 42, further including the step of writing a command through the communication port into the non-volatile memory to disable the permanent access code for the electronic access control device.

65. (New) The method of claim 40 wherein the access code is a permanent access code.

66. (New) The electronic access control device of claim 52 wherein the access code is a permanent access code.

67. (New) A method comprising the steps of:

storing an access code within a non-volatile memory;

providing a wake-up signal in response to pressing any of at least two keys of a keypad;

waking-up a microprocessor for a period of time in response to the wake-up signal;

transmitting an input code to the microprocessor;

comparing the input code with the access code during the period of time;

activating a lock actuator if the input access code matches the access code;

entering a sleep mode after the period of time, wherein during the sleep mode the microprocessor operates at a lower power consumption rate than when the microprocessor is awake.

68. (New) The method of claim 67 wherein the access code is a permanent access code.

69. (New) An apparatus comprising:

a non-volatile memory containing an access code;

a circuit generating a wake-up signal in response to pressing any of at least two keys of a keypad;

a processor that is woke-up for a period of time in response to the wake-up signal, compares an input code within the access code, and generates a signal to activate a lock actuator if the input code matches the access code;

wherein the processor enters a sleep mode after the period of time, the sleep mode causing the processor to operate at a lower power consummation rate than when the processor is awake.

70. (New) The apparatus of claim 69 wherein the access code is a permanent access code.

71. (New) An electronic access control device comprising:

first and second controllers separated from each other, wherein the second controller is shielded from external access and comprising a memory for storing a communication code;

the second controller receiving a request and transmitting the communication code to the first controller;

the first controller receiving an input access signal from a key or keypad, and comparing the input access signal to a stored access code to determine if the input access code is valid;

the first controller sending the communication code to the second controller if the input access code is valid, wherein the second controller provides a signal to energize a circuit to access a lock.

72. (New) A method comprising the steps:

storing a communication code in memory of a second controller separated from a first controller, the second controller shielded from external access;

receiving a request and transmitting the communication code from the second controller to the first controller;

transmitting an input access signal from a key or keypad to the first controller;

comparing the input access signal to a stored access code to determine if the input access code is valid;

sending the communication code to the second controller if the input access code is valid, wherein the second controller energizes a circuit to access a lock.

73. (New) A method comprising the steps of:

storing a permanent access code within a non-volatile memory;

providing a wake-up signal in response to pressing any key of a keypad;

waking-up a microprocessor for a period of time in response to the wake-up signal;

transmitting an input code to the microprocessor;

comparing the input code with the permanent access code during the period of time;

activating a lock actuator if the input access code matches the permanent access code;

entering a sleep mode after the period of time, wherein during the sleep mode the microprocessor operates at a lower power consumption rate than when the microprocessor is awake.

74. (New) An apparatus comprising:

a non-volatile memory containing a permanent access code;

a circuit generating a wake-up signal in response to pressing any key of a keypad;

a processor that is woke-up for a period of time in response to the wake-up signal, compares an input code with the permanent access code, and generates a signal to activate a lock actuator if the input code matches the permanent access code;

wherein the processor enters a sleep mode after the period of time, the sleep mode causing the processor to operate at a lower power consummation rate than when the processor is awake.